

CLAIMS

1 1. An intercooler for a vehicle engine incorporating an exhaust gas
2 turbocharger and an air conditioning system, said intercooler comprising:
3 a charge air cooler loop operatively connected to cool heated, pressurized air
4 from said turbocharger before it flows into said vehicle engine; and
5 an air conditioning system bypass loop operatively connecting said air
6 conditioning system to said charge air cooler loop.

1 2. The intercooler of claim 1, where said charge air cooler loop comprises:
2 a charge air cooler, a charge air cooling evaporative core and a low-temperature
3 reservoir.

1 3. The intercooler of claim 2, where said charge air cooler loop and said air
2 conditioning bypass loop are operatively connected through said low-temperature
3 reservoir.

1 4. The intercooler of claim 1, where said charge air cooling loop absorbs
2 heat from said heated pressurized air during acceleration and radiates heat during low
3 power.

1 5. The intercooler of claim 2, where said air conditioning bypass loop is
2 operatively connected to said charge air cooler through said charge air cooling
3 evaporative core.

1 6. The intercooler of claim 1, where actuation of said air conditioning bypass
2 loop is controlled to modulate load on said air conditioning system.

1 7. The intercooler of claim 1, where said air conditioning bypass loop is
2 actuated when peak acceleration performance is desired from said vehicle engine.

1 8. The intercooler of claim 1, where said air conditioning bypass loop is
2 actuated to load said air conditioning system and brake said vehicle engine.

1 9. An intercooler for a vehicle engine incorporating a supercharger and an air
2 conditioning system, said intercooler comprising:

3 a charge air cooler loop operatively connected to cool heated, pressurized air
4 from said supercharger before it flows into said vehicle engine; and

5 an air conditioning system bypass loop operatively connecting said air
6 conditioning system to said charge air cooler loop.

1 10. The intercooler of claim 9, where said charge air cooler loop comprises:
2 a charge air cooler, a charge air cooling evaporative core, and a low-temperature
3 reservoir.

1 11. The intercooler of claim 10, where said charge air cooler loop absorbs
2 heat during acceleration and radiates heat during low power.

1 12. The intercooler of claim 10, where said charge air cooler loop and said air
2 conditioning bypass loop are operatively connected through said low-temperature
3 reservoir.

1 13. The intercooler of claim 10, where said air conditioning bypass loop is
2 operatively connected to said charge air cooler loop through said charge air cooling
3 evaporative core.

1 14. The intercooler of claim 9, where actuation of said air conditioning bypass
2 loop is controlled to modulate load on said air conditioning system.

1 15. The intercooler of claim 9, where said air conditioning bypass loop is
2 actuated when peak acceleration performance is desired from said vehicle engine.

1 16. The intercooler of claim 9, where said air conditioning bypass loop is
2 actuated to load said air conditioning system and brake said vehicle engine.

1 17. An intercooler for a naturally aspirated vehicle engine incorporating a
2 manifold and an air conditioning system, said charge air intercooler comprising:

3 a charge air cooler loop operatively connected to cool air flowing into said
4 manifold; and

5 an air conditioning system bypass loop operatively connecting said air
6 conditioning system to said charge air cooler loop.

1 18. The intercooler of claim 17, where said charge air cooler loop comprises:
2 a charge air cooler and a charge air cooling evaporative core.

1 19. The intercooler of claim 18, where said charge air loop absorbs heat
2 during acceleration and rejects heat during low power.

1 20. The intercooler of claim 17, where said air conditioning bypass loop is
2 actuated to load said air conditioning system and brake said vehicle engine.